Resistance or parasitism?

Resistance or Parasitism? Waste Scavengers and Dengue Mosquito Control in Nicaragua

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Abstract

In this chapter, I describe the response of urban Nicaraguan garbage scavengers to the Plan Chatarra, a Ministry of Health effort to effect dengue mosquito control by sanctioning the trade in recyclable waste. Occurring during a volatile period for the global garbage economy, as well as alongside an intense struggle for rights to waste within Nicaragua, the Plan Chatarra is an example of how global health problems articulate with wider social and economic events. In Nicaragua's waste controversy, global dengue prevention policy was certainly at issue, but it was almost never *directly* addressed by the actors involved. Analyzing the Plan Chatarra ethnographically, I argue that the relationship between local populations and global health initiatives might best be seen not as one of binary domination and resistance but of multidirectional "parasitism."

Ciudad Sandino, Nicaragua, a community of over 100,000 residents just north of Managua, is home to plenty of mosquitoes, and it contains plenty of places for them to hide and breed. Ciudad Sandino is divided into fourteen neighborhoods, known as *zonas.* The zonas are comprised of uniform ten- by thirty-meter houselots, each directly abuting the next. *Ae. aegypti* mosquitoes, which transmit the dengue virus among humans, prefer to breed in such close-knit spaces. Female *Ae. aegypti* tend to lay their eggs water basins, sinks, gutters, and sometimes in accumulated household waste. The adult female of the species is capable of carrying the dengue virus, which has become a growing public health threat across urban Latin America. Indeed, dengue is so common in urban Nicaragua that most human adults—whether or not they know it—have likely been exposed to the virus by the time they reach twenty years of age (Standish, et al. 2010). The dengue virus infects over 250 million people per year, from Singapore to South Florida. It is the most prevalent mosquito-borne disease in the world.

This chapter draws on fieldwork I conducted in Ciudad Sandino between 2006 and 2011 to discuss the relationship of household waste to global dengue prevention strategies (Nading 2014). In Ciudad Sandino, where formal unemployment ranges from 50 to 75 percent,

scavenging and selling recyclable materials is a common livelihood strategy (Hartmann 2012). The garbage trade is a frequent target of Nicaragua's national dengue control policy. In 2008, an ongoing political struggle over waste management in Ciudad Sandino became entangled with an ongoing dengue fever epidemic. By tracing this entanglement, I argue that the relationship between local populations and global health initiatives might best be seen not as one of binary domination and resistance but of multidirectional "parasitism" (Serres 2007). In Ciudad Sandino's urban waste controversy, global dengue prevention policy was certainly at issue, but it was almost never *directly* addressed by the actors involved.

Source Reduction

I am trudging slowly behind a garbage truck as it winds through Zona 10. At first, the process of collection seems familiar and tedious. *Recolectores* (they are all men) pick up bags of refuse in each house, transfer their contents to a truck or trailer bed, and walk off to the next house. Things get more interesting when the bed fills up. That is when we load up and drive to the municipal dump.

Ciudad Sandino's dump is a disused farm field. There are two ways in and out. One is by municipal vehicle: usually a white Toyota dump truck. Garbage truck drivers prefer to go in and out rapidly. In the dry season, this means that the *recolectores* who ride atop the mounds of refuse in the exposed bed become shrouded in a fine red dust. In the rainy season, the trucks splash through mud puddles, and chances are high that the vehicles will become stuck in the furrows of the dump, which sits adjacent to an outlying zona called Nueva Vida.

Before unloading the garbage, most crews make a quick stop on the entrance road that divides the field from Nueva Vida. There, the *recolectores* in the bed jump out and jog into a

nearby house, a structure made of wood and sheet metal surrounded by a flimsy fence of immature tree trunks and a few strands of rusty barbed wire, spilling into the ditch (*cauce*) that separates the barrio from the entrance road. The *recolectores* haul massive plastic grain sacks filled with their day's catch of *chatarra.* (*Chatarra,* literally "junk," is the omnibus term in Nicaragua for recyclable materials, from plastic bottles to cans, copper wiring, scrap iron, and paper.) A woman in the house will weigh and buy these items. While awaiting payment from the buyer (or *chatarrero*), the *recolectores* might cross paths with garbage scavengers like Doña Flor, a fiftyish woman who works in the dump picking out the recyclables that the crews leave behind.

On this day, I decide to say goodbye to the truck and crew and accompany Doña Flor to her house. She leads me on the other route out of the dump and into Nueva Vida. She walks slowly, a spiked metal prod for sifting through rubbish piles balanced on her shoulder. For me, her pace through the barrio, shaded from the sun that scorches the treeless dump, is as refreshing in its ease as the rides on the garbage trucks were in their briskness. She shares her house with two sons and a few grandchildren. The house, too, has a flimsy barbed wire fence enclosing piles of recyclables. The piles grow and shrink inversely with the market prices of the materials they contain.

Over the weeks and months, recyclables move in and out of her house and in and out of Ciudad Sandino in a waste stream that flows from scavengers to small buyers, on to large brokers in Managua, and ultimately to faraway ports on other continents. The stream bears money, people, and product brand identities. Insects also ride along. *Ae. aegypti* mosquitoes sometimes lay eggs in the things Doña Flor and others collect.

Ae. aegypti is more difficult to control than its malaria-spreading distant cousins in genus *Anopheles* because it occupies the intimate, private spaces people call home. Given its adaptability to households and their surroundings, controlling *Ae. aegypti*—and thus controlling dengue fever—requires, first, that communities have effective water and waste management. Second, someone must inform individuals about the mosquito and its breeding habits and convince them that they should be on the lookout for potential breeding sites. In the absence of an effective dengue vaccine, these two priorities, waste/water management and mosquito control, have made a house-to-house mosquito "source reduction" strategy the only globally accepted strategy for preventing dengue. The goal of this strategy is to make the urban environment unwelcoming to the mosquito by encouraging people, through a combination of insecticide application, public education, and law enforcement, to rid their homes of potential breeding sites, or "sources," including waste.

This approach dates back to the earliest days of mosquito control, and it hinges on a feedback between perceptions of collective risk and personal responsibility (Carter 2012; Beck 1992; Peterson and Lupton 1996). Managing this feedback has long been key part of public health across Latin America. As Charles Briggs and Clara Mantini-Briggs suggest, ideas about who is capable of contemplating and acting on health risk and who, by dint of racial, ethnic, or gendered discrimination, is doomed to be victimized or demonized, constitute a domain of "sanitary citizenship" (2003: 319–20). In the case of dengue, the making of sanitary citizens means fostering a recognition that things, people, and mosquitoes are entangled, and determining differing levels of responsibility for managing that entanglement (Nading 2012).

During my fieldwork, I witnessed dozens of campaigns led by the Nicaraguan Ministry of Health (Ministerio de Salud, henceforth, MINSA) in which doctors, garbage collectors, and

community health workers (*brigadistas*) exhorted homeowners to discard the plastic, rubber, and scrap metal piled in their homes. Brigadistas walked alongside the garbage trucks, reminding residents that mosquitoes like to breed in the pools of rainwater that form in those piles, and that there was neither a cure nor an effective vaccine for dengue. They spoke vividly about the consequences of inaction: the spread of a virus that causes hemorrhagic fevers, physical impairment, and even death. But the campaigns failed to create a consensus among residents about how to stop dengue from spreading. Instead, they aggravated social divisions among health workers, city garbage collectors, and garbage scavengers. These divisions arose not over how to define the disease (no one disputed that dengue was a problem) but over how to foster community participation, how to manage space, and how to balance resources and hazards. In short, they were about the limits to sanitary citizenship.

In Ciudad Sandino, as in other places, waste has long been a focus of source reduction efforts, whether in one-off cleanup campaigns or in more routine house-to-house mosquito control efforts. While some have posited links between inadequate solid waste control and dengue, those links tend to be over-simplified. Studies tend to characterize the wastes that can become mosquito-breeding sites as problems typical of "consumer societies" (Ashencaenen-Crabtree, Wong, and Mas'ud 2001; Gubler 1989). Discourses about the "choice" to scavenge or otherwise harbor garbage that might play host to mosquitoes spin an "apolitical" narrative of dengue ecology (Robbins 2012). What is missing is an investigation of how global economic pressures and social relationships entangle the social lives of mosquitoes and people with those of nonliving materials, making the ideal of sanitary citizenship impossible to achieve.

Garbage Economies, Disease Ecologies

The year 2008 saw two turning points in the relationships between Ciudad Sandino's garbage scavengers, its mosquitoes, and the Nicaraguan state. The first turning point came in March, when scavengers organized blockades of the dumps in Ciudad Sandino and nearby Managua. Until 2006, the scavengers had a nearly uncontested claim to garbage of value, but persistent poverty and a spike in global demand for recyclables changed both the geography and the demography of scavenging. From late 2005 to mid-2008, worldwide prices for recyclable materials soared. City garbage collectors, whose work gave them easy access to the waste stream, took special advantage of the boom, picking up large amounts of plastic, metal, and aluminum on their daily routes. This on-route recycling sparked the scavengers' protests. For several days, they lobbed rocks at city vehicles that dared to enter the dumps. They demanded that city leaders order garbage collectors to stop selecting and selling recyclables during their work routes (Hartmann 2012).

Both scavengers and garbage collectors recognized not only that without their labor, recyclables could not realize their market value, but also that without their efforts, the city could not come close to being clean. Although both groups tried to secure exclusive access to garbage of value, neither found a satisfying way to convince the city government that it deserved rights to collect. Both groups were trying to secure their positions as what scholars of Latin American politics call "clients" to powerful "patrons" in the city government. Elaborated in the postindependence period, the concept of patron-clientelism helps explain how wealth and power become distributed systematically across spaces that government institutions cannot reach. In the ideal-typical version, "patrons" use wealth and generosity to mobilize the labor of poorer clients, who reciprocate with political loyalty. Importantly, individuals may play the role of both patron and client simultaneously. A small-time patron may in turn be the client of an even more

powerful person. At each level, people sacrifice their individual rights as citizens for material goods. A system based on patron-clientelism—as Ciudad Sandino's garbage economy largely was—is somewhat at odds with ideas of sanitary citizenship, as well as with a free and open market. The scavengers saw city leaders' tacit approval of the garbage collectors' actions as a violation of an implied moral contract. They, not the collectors, deserved to pick up the city's valuable wastes.

But the situation was not that simple. Though the garbage collectors appeared to hold familiar, modern public works jobs, they depended on strong relationships with political bosses for their job security. Civic leaders, likewise, needed someone to keep the city minimally clean. Their patronage was not simple generosity. They, too, depended on formal and informal garbage collectors to validate their own political legitimacy.

If the dump conflict marked the first turning point in the relationships between garbage scavengers, mosquitoes, and the state, then the Plan Chatarra, a nationwide campaign devised by MINSA in 2008 to ban scavenging and garbage trading from city centers and relegate it to areas far from homes and shops, marked the second. The implication of the Plan Chatarra was clear: trash was dirty; dirt bred bugs; bugs carried disease to people; concentrations of trash must also lead to concentrations of dengue. One official emphasized in the conservative daily newspaper *La Prensa* that "chatarreras are sites of large mosquito breeding areas. . . . [These] businesses have exposed more of the population to . . . dengue."[1] Patron-client relations were central to the chatarra business as well. Large, well-capitalized chatarra buyers in Managua would routinely sponsor smaller buyers. These smaller buyers, in turn, would work to develop reputations among scavengers as fair-minded and generous in their payouts.

Both the disputes at the dump and the Plan Chatarra reveal how persons and things and

creatures that look singular can have multiple identities. The work of collecting and circulating garbage was a mode of *personal* survival that, paradoxically, threatened *population* health. Garbage scavengers were alternately the cause of and the solution to the dengue crisis. The state and the health ministry seemed to be acting both to promote the welfare of the city's poorest residents and to undermine it.

It is certainly not news that some city dwellers, from North Carolina to Nicaragua to Nairobi, survive by scavenging for garbage of value, but from late 2005 until the global financial meltdown of 2008, the world market for recyclables reached unprecedented heights (Medina 2008:3). As market prices for recyclables went up, the number of scavengers also increased, and scavengers saw their claims to that material deteriorate rather than improve. From just ten licensed chatarreras in 2005, the city counted twenty-six by the end of 2008. Scavengers I interviewed in 2008 told me that increased competition during the price boom caused their earnings for an eight-hour workday to drop to a low of just thirty córdobas (roughly $1.50) from a high of more than one hundred córdobas. The average adult supported at least three family members.[2] The entanglement of human bodies with mosquitoes and garbage was thus mediated by economic volatility. Just as dengue epidemics can spike rapidly in unexpected places due to circulation of people, viruses, and materials and then recede with little warning, global prices for aluminum, steel, plastics, and paper rise and fall with impressive speed. Over the course of 2008, Nicaragua's garbage trade reached a climax, producing up to forty million dollars for the national economy.[3] Later that year, in the wake of the global economic crisis, the business crashed. It was during the boom, however, that the protest in the dumps occurred and the Plan Chatarra was put into action.

Garbage, Abjection, and Conflict

Around 1998, after rains from Hurricane Mitch flooded homes on the shores of Lake Managua, government resettlement plans moved some scavengers to Ciudad Sandino. "We kept scavenging," one scavenger said of the move. "Back then there was lots of garbage coming in, and no one else bothered with it." People had been making a living by scavenging since the opening of Managua's large open-air dump in 1972. (The Nicaraguan term for "garbage scavenger," *churequero,* comes from the nickname for Managua's dump, "La Chureca.") After the hurricane, many of those who had been resettled would pack material from Ciudad Sandino and drive it to Managua, where buyers paid better prices.

Everyone involved in the trade kept up with the prices for different materials, from plastic and paper on the cheaper end to copper and bronze on the higher end. The key to being a good chatarrero and cultivating a base of client churequeros was a reputation not just for prices that matched the accepted daily rate but for fair weights and measures. Churequeros quickly turned on patrons whom they considered dishonest, and chatarreros were careful to inspect sacks of material before payment, looking for rocks and sand hidden within to increase their weight and value.

As these checks and balances developed, a steady supply of waste streamed into Ciudad Sandino. Trucks from nearby apparel factories established in free trade zones (*zonas francas*) carted scrap shoe soles, shredded fabric, and giant plastic packing sacks—all recyclable, all valuable—into the dump. In the early years of the new century, the number of zonas francas was growing. During the same period, municipal solid waste was becoming more saturated with valuable items.

It was at this time that, among Ciudad Sandino's churequeros, a labor organization of

sorts emerged—albeit one with no clear leader. The churequeros started to come to the consensus that the city garbage collectors' poaching of the waste stream had become intolerable. When I asked why the scavengers had organized, their answers were framed moral terms. Going into the dump every day and collecting for eight to ten hours was preferable to working on the streets. This hard work, in a recognizable workplace, helped keep people away from drugs and crime. In a city where formal employment was difficult to find, *churequeando* was a morally acceptable alternative to other "underground" methods of making a living. Churequeros did not understand why city leaders should undermine this by allowing city collectors, who already had paying jobs, to scavenge. Churequeros who ventured into the streets to look for chatarra were seen as "delinquents," "thieves," and "vagrants." As either undereducated young people or "older" (i.e., older than thirty) adults, churequeros' chances of securing formal employment in places like the zonas francas were small. Churequeros, in other words, were cut out of a new system of trade and work that had allowed cheap, recyclable materials to proliferate in Nicaragua. Recalling the older form of trade and work, they asserted that their work in the dump was a contribution to the city. "Put it this way," one churequero told me: "How would it be if we *didn't* live this way? We'd really be the worst city in Nicaragua."

The city-employed garbage collectors, by contrast, all belonged to an established and powerful labor union, historically dominated by loyalists to the Frente Sandinista de Liberación Nacional (FLSN), the party that led Nicaragua's 1979 left-wing revolution. The FSLN's leader, Daniel Ortega, was elected president in 2006, 16 years after the defeat of the Revolution.

Union activists argued that what churequeros did was not really "work." As Ulrich Schilz, Managua's sanitation supervisor, declared in an editorial published in the normally left-leaning newspaper *El Nuevo Diario,* "The churequeros are not workers; they are informal

businesspeople who sell their labor to no one. They exploit themselves, a few with great success. . . . The only one who gives value to a product is the worker. . . . In this case, the product is the organization and cleaning of garbage. . . . The agents of the informal, opportunistic economy don't add any value to this product."[4] From the union's point of view, the churequeros were not working in cooperation with a party or a government. They were parasites, living on the margins of the city. Unionized collectors represented themselves more positively, as underpaid and overworked providers of a "service." The city could never pay them enough in cash for the service they rendered. It owed them the chance to make extra money by recycling.

Yet senses of moral obligation among city collectors were more complex. Don Nelson, a garbage truck driver, confessed in an interview: "I don't really think we should be doing it, and we didn't do it so much before. The churequeros are poor and they live on the garbage. But I . . . let the others [the *recolectores,* who put garbage into the truck] recycle. They don't earn as much money as I do; they also need the income." Don Nelson was ambivalent about the union's defense of scavenging. As an economic resource, garbage was, at least intuitively, "for" those really in need. The churequeros were precisely the kinds of people that the Sandinista revolution was supposed to bring into the community of citizens. The churequeros were not simply economic adversaries, and the government patrons were not simply distributors of resources.

The dump protests ended in a partial victory for the garbage collectors' union. Each collecting crew, led by a truck driver, negotiated with the churequeros about which materials it would salvage and sell and which it would leave for those in the dump. Even before dengue entered the picture, the politics of chatarra in Ciudad Sandino centered on a set of contradictions. Was waste a collective nuisance or a privatizable resource? Could it be both? If waste was a nuisance or, worse, a threat to public health, what would best control it, state regulation or a

more streamlined market? The Plan Chatarra, which went into effect just weeks after the settlement of the dump strike, only piled on the paradoxes.

The Plan Chatarra

Chatarreros saw the Plan Chatarra as scapegoating. In a June 2008 meeting at Ciudad Sandino's main health center, they asked repeatedly for "proof" that their businesses were sites of mosquito propagation. "We fumigate," they said. "We have sanitary licenses from the city, from MINSA." "Why this sudden change in the rules?" "How come we are being held responsible *now* if we know dengue affects us every year?"

The health center's director, wielding a dry erase marker, tried to explain the health implications of Nicaragua's garbage economy for his audience. "You see," he began, "there are large brokerages, medium brokerages, and small—we say 'family'—brokerages." He drew parallel horizontal lines on the board to schematically indicate the medium and small brokerages. As he descended, each line became longer, forming a pyramid. Then, below the last line, which indicated the "family" brokerages, he began making vertical, slashing hash marks, indicating that they were more numerous than the large and medium ones. "What's the problem with all these small brokerages? They are inside the barrios, inside the . . . center of the city." He circled one of his hash marks, making dots around it. "There are houses, businesses, schools." He paused, almost like a preacher or a schoolteacher giving a scolding. "And what happens when an infected mosquito…lives there?" He paused again. Having temporarily silenced the room, he went on to give an extensive recap of the life cycle of the *Ae. aegypti* mosquito, explaining how it might propagate from a chatarrera.

I attended this meeting expecting this sort of interaction: defensiveness from the

chatarreros, loquacious scientific speechifying from the MINSA authorities. What I did not expect was the candid appeal to environmental stewardship on the part of the chatarreros that followed. One by one, the chatarreros—mostly men, but a few women—rose to explain to the director that they were "responsible" businesspeople. They were quite aware of the stigma of dealing in garbage, but, they repeated over and over again, "If we did not have this business, where would the garbage go? Who would you blame then?" The chatarreros, they argued, were "cleaning up" the city. Moreover, they were providing "employment." The director's pyramid had yet another rung, even lower and even wider, made up of churequeros, for whom wealthy Nicaraguans had an entomological nickname: *hormigas* (ants), presumably because a churequero carrying a giant sack of empty bottles or cans resembles an ant lugging an improbably large morsel of food.

"Who are our clients?" One man asked, impatiently. "They are the old, the children, the most poor. If you move us out of the city, where will they go? Are you going to ask an old man to walk five, six kilometers out of town so he can survive? This is their survival!" The brokers were styling themselves less as sanitary citizens than as responsible patrons.

To Don Eliseo Ordoñez, it was not surprising that MINSA launched the Plan Chatarra when it did, in April 2008. Don Eliseo was the owner of one of Nicaragua's four largest chatarreros, a patron to many small family chatarreros, and a leader in the Association of Recyclers of Nicaragua (Asociación de Recicladores de Nicaragua, or ASORENIC). His business was one of collection and export. He bought aluminum, plastic, paper, and assorted metals in bulk, loaded them onto shipping containers, and sent them abroad. The destinations of these shipments tended to be in Asia, particularly China, where a boom in construction meant high demand for cheap raw material. Don Eliseo was politically and socially active. Among

other things, he had been involved in the years before Ortega and the FSLN returned to power with an effort to lobby the Association of Nicaraguan Municipalities to replace municipal garbage collection services with private firms such as his. Starting in 2002, ASORENIC began to style itself as a pro-environment, pro-health organization. That year, it generated a press release promoting the recycling business as a way to connect Managua to a globalizing world, asking, "If they can do it in Miami, in Los Angeles, in Mexico, in Guatemala, in Costa Rica, or in any other country in the world, why NOT in NICARAGUA?" When the Ministry of Health initiated the Plan Chatarra, ASORENIC again began making the case that the private sector—not the state—could best handle urban sanitation. The firms would pay the cities for the right to collect valuable garbage and profit by selling the vastly increased volume they would yield. Given that projects like the rebuilding of Ciudad Sandino's infrastructure in the days after Hurricane Mitch relied upon private enterprise, such a proposal might not have seemed so far-fetched.

Don Eliseo had no doubt that MINSA had hatched the Plan Chatarra as a response to a political opportunity created by the churequeros' protests. The protests had been covered extensively in the national television and print media, and Managua's dump, "La Chureca," was already a high-profile stain on the government's reputation. It was the largest open-air waste facility in Central America, and it had become a regular tour stop for photographers and NGO activists looking either to expose environmental damage and extreme poverty. Ciudad Sandino's "chureca" was a similar if less well-known site. Located just a few steps away from a large, private charity health clinic, Ciudad Sandino's dump was also regularly visited by foreign volunteer and aid groups. Given the proliferation of painful images of dumps and their inhabitants on television, the Internet, and in newspapers, Don Eliseo explained, Ortega's new FSLN government was under pressure to do something. The protests against city garbage

collectors who seemed to be skimming resources from their needy residents could not have come at a worse time. They had further undermined the public's trust in city services.

As a result of the protests, Don Eliseo told me, "the government realized how lucrative the business is, and they are setting up these restrictions on us so that they can take it over." To Don Eliseo, the Plan Chatarra was nothing more than parasitism. The government was using the pretense of dengue to disrupt a long-standing and productive set of reciprocal patron-client relationships that linked large buyers like himself to street-level churequeros. For the business-minded leaders of ASORENIC, the solution to the health problems posed by garbage was not a crackdown on scavenging but a formalization of it. Such a formalization would modernize Nicaragua, improve health, and—presumably—allow private businesses to handle a problem that the corrupt state was clearly ill-equipped to address. When the Plan Chatarra was put into action, "family" chatarreros cited their role in "cleaning" the city and giving the poorest of the poor a chance to make a living. Large chatarreros like Don Eliseo took this narrative of environmental stewardship one step further, playing on the struggles of the poor and trumpeting the market to frame the garbage trade as a "comedy of the commons," in which harvesting waste seemed like a solution to, rather than a symptom of, the ravages of poverty (Rose 1986; Hardin 1968).

Don Eliseo's suspicions about a vast state conspiracy notwithstanding, in mid-2008, Ciudad Sandino and the rest of Managua *were* facing the onset of another dengue epidemic, and traders *were* seeing record highs in the prices of recyclable materials. The number of chatarreras and churequeros *was* swelling, it seemed, alongside the number of dengue cases. The correlation between this market surge and the epidemic surge was circumstantial rather than causal, but it had power nonetheless.

There is little doubt that the spaces where garbage changes from waste to commodity

sometimes overlap with the spaces where mosquitoes reproduce and spread disease. Mosquitoes, therefore, actively mediated the conflict of economic and environmental management that was occurring at the height of Ciudad Sandino's garbage boom. Waste and mosquitoes "explained each other" (Robbins 2012:95). City garbage collection services, however partial, depended on the idea that the solution to environmental problems began in homes. For residents who had access to regular curbside pickup, a failure to dump signaled a glaring absence of social responsibility—of sanitary citizenship. Those who insisted on harboring garbage in their homes were named and shamed by their neighbors. A similar discourse surrounded the management of mosquitoes. Mosquitoes were a public problem that originated in private space. People who refused to have their homes purged of insects faced public rebuke. In the more marginal barrios where scavengers resided, however, the division of space and responsibility into stark categories of public and private did not make as much sense. Houses in these areas were much more tenuously private. Many churequeros had constructed their homes out of donated material, on land they did not own. Others were deep in debt to private electrical and water companies. Churequeros who had no legal title to their own houses showed me power bills that reached into the tens of thousands of *córdobas*. In the face of aggressive bill collectors, house abandonments were a fairly common occurrence. Residents thus had trouble seeing the upkeep of their homes as a long-term private interest, much less a public one.

The idea that dengue "hot spots" can be localized by identifying "high-risk" zones like chatarreras or the homes of churequeros is more easily postulated than proven (Adams and Kapan 2009). *Ae. aegypti* are highly adapted to human movements, breed in small colonies, and are difficult to isolate. In addition, most dengue cases are asymptomatic. Absent a massive sample of human blood for evidence of latent dengue antibodies, there was no practical way that

MINSA could have proven that hot spots existed around chatarreros. The Plan Chatarra raised pressing questions about how to regulate a disease with no cure or effective prophylactic, in an environment where overcoming poverty often trumped other collective priorities, including health and sanitation.

The Moral Economy of Mosquito Control

The Plan Chatarra linked the recycling business to disease, but it was more than the fact that chatarreros traded in garbage that bothered MINSA officials. After all, as Don Eliseo and other chatarreros reminded me, "We are helping to clean up Nicaragua." The problem was the manner in which they traded. More insidious still, as was noted both in published press accounts and in the June meeting between the director of Ciudad Sandino's health center and the local brokers, was the proximity of "small," "family" recycling brokerages to private homes.[5] Chatarreros were bad neighbors. Still, MINSA's efforts to regulate them failed to change the system just as completely as did the churequeros' efforts to secure rights to scavenge. That failure stemmed in part from the sheer ambition of the Plan Chatarra. Ending garbage scavenging once and for all would have been nearly impossible. The plan did nevertheless strain the relationship of "client" chatarreros to large "patron" brokers like Don Eliseo.

In early summer 2008, the small chatarreros of Ciudad Sandino learned that an advocacy alliance was being formed. An environmental NGO that also claimed to represent banana plantation workers injured by the pesticide Nemagon was being financed by ASORENIC, the consortium of Managua's largest garbage brokers, to organize opposition to the Plan Chatarra. By paying a membership fee to the NGO, Ciudad Sandino's chatarreros would receive a card that identified them as "recyclers," along with a small diploma, and a blue-green, earth-themed

sticker to place on their front doors. The sticker read, “We the Chatarreros of Nicaragua demand that the government respect us and allow us to work for the daily bread of our children. God bless this nation. Yes to work! No to unemployment!” Like the churequeros, these normally independent actors would band together, making a moral case for their rights to collect and sell waste.

Doña Nubia was one of the first to join. She opened up a chatarrera in her small house near the main entrance to Ciudad Sandino around 2007. She had lived there since the 1980s, when the revolutionary government gave her land as compensation for her husband’s death in an industrial accident. For most of her life, she had been a street vendor, selling juices and flavored ice at the bus stop near the barrio’s entrance. As she got older, that work became a strain on her knees and back, and her son, who owned a small pickup truck, suggested that she begin work as a chatarrera. Doña Nubia’s chatarrera was typical of the cottage industry that blossomed and withered in the space of a few short “boom” years in the late 2000s. Her main tool was a heavy-duty scale, of the kind that was common in meat or grain stalls in Managua’s markets. It was a bronze, spring-calibrated mechanism with a sharp hook attached to one end and an eye attached to the other. Doña Nubia had it nailed to a rafter overhanging her small front porch. On a large piece of scrap roofing metal, her son had fashioned a sign, in black paint, that read “se compra chatarra.” Churequeros, local schoolchildren, and neighbors would arrive with sacks of plastic, aluminum, steel, copper, or other items (usually presorted), and Doña Nubia would weigh them and pay a per-pound rate, which she set by taking a small reduction from the rate she would receive from a larger buyer in Managua. Then she would empty the bag into one of the larger piles of like materials that dotted her patio. When the piles became large enough (or the price spiked high enough), her son would load them into the pickup and sell them to a trusted patron.

Like most of the twenty-six other chatarreros in Ciudad Sandino, Doña Nubia was visited by representatives of ASORENIC's environmental NGO, who convinced her to pay and join. As they explained, dengue was a danger, but the real problem was that the government was overregulating the garbage, a nuisance to be sure, but also an "inexhaustible resource." If they would let the chatarreros treat it for what it was, health and wealth would both improve. During our interview at his office, Don Eliseo showed me a PowerPoint presentation he had prepared for municipal governments interested in privatizing their garbage services. Its concluding slide contained green words on a gray background: *Basura=$* (Garbage equals money). As one of his own business circulars noted, "Chatarra represents a great source of income, not just for its owner, but for the country, if we just take advantage of it." Don Eliseo was linking the commoditization of garbage to the achievement of health and wealth. MINSA's renewed zeal for regulating recycling, he insisted, had little to do with health.

This, as it turned out, wasn't Don Eliseo's first fight against the health ministry. ASORENIC had been confronted by MINSA in 2002 over accusations that the industry's dependence on informal collection networks was bad for public health. That year, ASORENIC sent MINSA an open letter, portraying chatarreros as a group of petty patrons, "Recycling businesspeople, the vast majority of whom are humble, honest, hardworking people, have found a way to make a living, improve their economic situation, and PROVIDE WORK TO THOUSANDS OF NICARAGUANS." In 2002, MINSA and the rest of the Nicaraguan government were run by a largely pro-business, center-right regime. This message had a supply-side tint that was missing from the "bottom-up" flavor of the 2008 response to MINSA sanctions. The 2008 response was built not around talk of trickle-down economics but around the colorful, earth-themed environmental logo. Though the environmental alliance ASORENIC formed was

shaky, the quick organization of patron and client chatarreros against MINSA proved somewhat effective. The literally and metaphorically "green" logo started popping up on the walls of chatarreros all around town.

Then September came, and everything changed. The bottom fell out of the scrap metal industry, as the global financial crisis slowed world trade to a crawl. Indeed, in the words of Hilario Zepeda, a chatarrero who was elected to Ciudad Sandino's municipal council on the FSLN ticket earlier in 2008, once the prices went down and the churequeros' dump protests were out of the news, MINSA seemed to forget about them. But he and every other chatarrero I met in Ciudad Sandino also reported that ASORENIC and the environmental NGO had also disappeared.

"I think [the NGO] just wanted us to pay our inscription fees, to buy our little ID cards and be done with us," said Doña Nubia, whose business failed to survive the price crash. "They won't be back. MINSA won't be back."

Doña Lesbia, a chatarrera who lived in Zona 8, concurred. In hindsight, she couldn't understand why the NGO identification card said "recycler" and not chatarrera. Recycling seemed like the act of a conscientious consumer, not a trader. She didn't think of herself as in any particular way as an environmentalist. The truth was, "chatarra is a dirty thing. It's something that dirties you." A younger woman with little experience in the trade, Doña Lesbia was approached by a large buyer in Managua who wanted to make an inroad in Zona 8. He loaned her a scale and taught her about how to weigh and value copper, aluminum, bronze, steel, and plastic. When the crash ended her relationship with that patron, she, like Doña Nubia, had to diversify. When I met her, she was in the process of starting a door-to-door tortilla business. She kept the "recycler" sticker on the wall of her patio (she liked its bright colors), but as a small

chatarrera, she no longer mattered, either as an object of state scrutiny or as a symbol of "sustainable" capitalism.

Doña Lesbia's ambivalence about being called a "recycler" was telling. Perhaps she was aware of her status as a vulnerable "middle person," a parasitic figure in a pyramid scheme dominated by large interests like Don Eliseo's. She had come to see what other churequeros were seeing: in a commoditized landscape, the kinds of rights a poor person could assert—including the rights that come with clientage—began to shrink (Purcell 2002). Recycling was part of a survival strategy, but it was hard to turn it into a civic action. "Rights" to collect were not given.

MINSA lacked the power to convince people in greater Managua that the junk business as it was—an open range where technological, political, and monetary might determined who had resource rights—might be dangerous enough to public health to be regulated. The more garbage circulated, the less it seemed to be a common concern. Or perhaps Don Eliseo was onto something—perhaps the Ortega government wanted to add chatarra to the list of industries in which it had a major stake and from which it could provide a lucrative outlet for loyalists.[6] In an ecological sense, mosquitoes and the virus had taken advantage of the situation, thriving in a set of spaces (dumps, streets, parks, and gutters) that were neither public nor private, neither common nor collective.

"Dirtiness," as Doña Lesbia reminded me, was "part of the business."

Patrons, Clients, and Parasites

The last time we spoke, shortly before she closed the chatarrera, Doña Nubia told me the story of how her neighbor's child was stricken with dengue. "The child got sick, and soon MINSA and the neighbors were coming here telling me that the mosquitoes came from me." She

paused. “Do you think that’s possible?” she asked, “that a mosquito from here made her sick? There are clouds of mosquitoes in Ciudad Sandino.”

She paused again and looked pensively in the direction of her neighbors’ house. Neighborhood FSLN activists eager to carry out the Plan Chatarra had fueled the accusation that the child’s sickness was her fault. “They’ll be happy now because now I’m not buying anything anymore.” She threw her hands up in the direction of the last pile of scrap metal in the corner of her porch. By the time of our last conversation, in November 2008, few people were coming by to sell chatarra. In any case, Doña Nubia could rarely afford to buy it, given the depth to which prices had fallen. So the material sat there, rusting and collecting the last of the seasonal rains. And Doña Nubia sat beside it, pondering the lives of mosquitoes, of the little girl—now, thankfully, fully recovered from her bout with dengue—and of rumors from her fellow chatarreros about the prospect of a market recovery: a recovery that might make her solvent once again, but might also, once again, make her the object of neighborly and state scorn.

In the Plan Chatarra, it was small operators like Doña Nubia who received the bulk of MINSA’s attention. In an anti-dengue crusade built on a hygienic premise, that clean homes harbored few mosquitoes while “dirty” ones were potential breeding spots, this made perfect sense. It also made sense that the connection between chatarra and dengue became strongest when the market was strongest. Intuitively, it would appear that a strong market for recyclables *could* produce a cleaner and maybe even “healthier” city. What better incentive to clean than money? Yet the market could do little to produce a sense of ethical or social connection. Indeed, combined with a mounting series of dengue epidemics, the growth in the garbage market actually turned certain spaces and the bodies that occupied them into dangerous internal threats. Along the way, it destabilized the patron-client system that regulated the circulation of garbage. Under

stable circumstances, chatarreros and churequeros, even as "dirty workers," could rightfully claim to be improving public space. The soaring market, however, brought the details of the trade to broader attention. All of a sudden, churequeros and chatarreros appeared dangerously unconcerned with the quality of private spaces: of their own homes and bodies. It was their seeming disregard for the interior worlds they shared with mosquitoes that made them suitable objects of scorn.

The churequeros and chatarreros certainly made easy targets as public health officials in Nicaragua searched for someone to blame for the ever-mounting number of dengue cases. Scavenging disrupts standard narratives about the proper relationship between people and the things they buy, sell, and consume. People tend to characterize waste as polluting and dangerous, and turning it into value seems to violate basic norms about the proper way to make a living (see Douglas 2002 [1966]; Moore 2008). The economic lives of the chatarrero and the churequero seem somehow "parasitic." These actors thrive by milking the dark underside of a larger system of trade and consumption.

In another sense, however, chatarreros and churequeros were themselves beset by parasites. As clients, the churequeros and chatarreros of Ciudad Sandino depended upon the buying power of large patrons in Managua and beyond. Chatarreros and churequeros provided cheap, free labor for these well-capitalized entities, as well as for the city planners who—whether they openly admitted it or not—depended upon an army of *hormigas* to keep the streets minimally clean. The assignment of blame rested not only on ideas about the ethics of seeking profit from the waste that was so prominent in the urban landscape but also on normative ideas about ecology. The spaces that brigadistas and MINSA officials called *focos* (or what English-speaking entomologists sometimes call mosquito "hot spots"), from piles of garbage to flower

pots, were essential for the reproduction of life in the city. The mosquito, too, seemed to behave in a parasitic fashion, feeding and breeding opportunistically among humans in these same spots.

Parasitic relationships tend to complement and build upon one another. It is impossible to disaggregate the parasitic relationships between scavengers and large brokers from those between mosquitoes and people. Householders in poor cities cannot survive without scavenging. The global consumer economy arguably cannot thrive without the work of informal scavengers. Mosquitoes cannot spread without the help of the human garbage trade. Mosquitoes and garbage do something more than make people sick; they are productive of political and social relationships.

Seeing human and insect lives as entangled makes it difficult to argue that a will to sanitary citizenship—the kind of will that mosquito control programs are meant to instill—inevitably results from membership in a "consumer society." One of the lessons of both studies of parasitic relations in nature and those of patron-client relations in Latin American social life is that the terms of such relations are interchangeable. Beyond anthropocentrism, there is no necessary reason to see viruses or mosquitoes (both of which are much more abundant on Earth than are human beings) as thriving parasitically upon humans. It seems just as reasonable to say that epidemics of dengue, avian influenza, and the like are the result of *human* parasitism: exploitation of global resources, excess consumption, global warming, and the like. Likewise, in the patron-client relationship, who is behaving parasitically and who is being preyed upon depends upon one's point of view. Are garbage scavengers milking the city's material excess, or is the city milking the labor of scavengers to keep those excesses out of sight and out of mind? Power resides among those who can identify and neutralize parasites and clients.

Philosopher Michel Serres (2007 [1982]) argues that parasitic relations—relations of

disruption and disturbance—are the norm rather than an exception in social life. For global health, the parasite is a device for thinking of the ways in which environments are inhabited—constantly made and unmade—rather than simply occupied. While this volume is dedicated to exploring "resistance" in global health, parasitism might be a productive alternative. In Nicaragua, a local manifestation of a global health policy (dengue mosquito control) disrupted a local economy, but the reverse was also the case. Parasitism emphasizes multidirectional "noise" over binary acts of domination and resistance. In Nicaragua, a local conflict masked the global contradiction that increased consumption of disposable goods, even among the poor, makes parasites of almost everyone. Cities, and certain groups within them, become both reviled for their association with waste and indispensable to the reproduction of the economy.

In Nicaragua, parasitism happened at both a material and a symbolic level. At the material level, the fact that dengue mosquitoes could potentially find a harbor in otherwise valuable waste made these wastes even more abject. At a symbolic level, the circulation of wastes and mosquitoes through urban space—private, public, collective, and in-between—altered the social meanings of those spaces. From a free-market point of view, for-profit recycling might be seen as a cure to the environmental ravages of urban life, and the chatarrera might be a site of a kind of "green capitalism," while from MINSA's point of view, the same space could be one of risk and danger, or a threat to social solidarity. The connections between waste and dengue are far from direct, but neither are those between scavenging and sustainability. The absence of clear rights, whether those of churequeros to make a living from the dump, of the city government to regulate and resell refuse in the name of the public interest, or of MINSA to make the health implications of the postconsumer economy a point of public consideration, ultimately benefited large operators like Don Eliseo—and small ones, like *Ae.*

aegypti.

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[1] *La Prensa*, August 4, 2008.

[2] These data are based on a survey I conducted while interviewing adult (older than sixteen) churequeros in 2008 (n=50).

[3] *El Nuevo Diario,* October 14, 2008.

[4] *El Nuevo Diario,* March 24, 2008.

[5] *La Prensa,* August 7, 2008; *El Nuevo Diario,* July 24, 2008.

[6] *El Nuevo Diario,* September 29, 2009.